What is claimed is:

1. A wiring, power distribution, and control system for an automotive vehicle of the type having an electrical power source and a plurality of controllable load devices in different locations throughout the vehicle comprising:

a plurality of control nodes interconnected by a control signal network and power line, said control nodes being strategically placed in different regions in the vehicle to service selected groups of load devices associated with the individual node regions, each of said nodes comprises:

a first circuit board carrying a microcontroller having control signal inputs adapted to be connected to said network, and power control signal outputs;

said first circuit board further carrying a plurality of power switches having input terminals adapted to be connected to the power control signal outputs of the microcontroller and output terminals adapted to be connected to specific load devices; and

a second circuit board having terminal connectors adapted to be connected to the control signal network, power lines and load devices; and means interconnecting the terminal connectors to the microcontroller for control signal input purposes and the power switches to the terminal connectors for power output purposes.

2. A system as defined in claim 1 wherein said interconnecting means includes traces on each of the first and second boards and interconnects between the boards.

3. A system as defined in claim 2 wherein the interconnects between the boards are rigid pins serving to mount the first circuit board to the second circuit board in spaced relationship.

4. A system as defined in claim 3 wherein the first circuit board is mounted on the second circuit board by way of said rigid interconnects in parallel spaced relationship to permit air flow therebetween.

5. A system as defined in claim 4 wherein the spacing between the first and second circuit boards is at least about 4mm.

6. A system as defined in claim 1 wherein the power switches are arranged in a group which is spaced apart from the microcontroller.

7. A system as defined in claim 1 further including power switch mounting locations on said second board and means interconnecting said locations to the power control signal outputs of the microcontroller.

8. A system as defined in claim 1 wherein the switches are FETs.

9. A system as defined in claim 2 wherein said switches are FETSs.

10. A system as defined in claim 1 wherein said plurality of nodes include a front passenger side node and a front driver side node.

11. A system as defined in claim 10 wherein said plurality of nodes further includes a rear vehicle node.

12. A system as defined in claim 1 wherein the second circuit board further comprises means for signal connection between wire harnesses interconnecting the control nodes.

13. A power distribution and control node for an automotive vehicle of the type having a control signal network comprising:

a first circuit board carrying a microcontroller having data signal inputs adapted to be connected to said network and power control signal outputs;

said first circuit board further carrying a plurality of power switches having power terminals adapted to be connected to load devices and control signal terminals connected to the power control outputs of the microcontroller; and

a second circuit board electrically interconnected with the first circuit board and carrying terminal connectors for connecting the network to the microcontroller and the switches to load devices.

14. An apparatus as defined in claim 13 wherein the first and second circuit boards include electrically conductive traces thereon and rigid conductive circuit board interconnects therebetween such that the first circuit board is physically mounted on the second circuit board in spaced apart relationship.

15. An apparatus as defined in claim 14 wherein the switches are arranged on the first circuit board in a group wherein each of the switches are proximate at least one other switch, the microcontroller being placed on the board so as to be remote from the switches.

16. An apparatus as defined in claim 15 wherein the switches are FETs.

17. An apparatus as defined in claim 13 wherein the second circuit board further includes additional vacant power switch mounting locations, and means interconnecting said locations to the control signal outputs of the microcontroller.

Abstract of the Disclosure

[0032] The architecture of an automotive wiring, power distribution and accessory control system is described. The system comprises semi-custom two-tier nodes which are distributed in locations around the vehicle to service load devices associated with or found in different regions of the automobile topology. A multiplexed control network interconnects the nodes along with a two-wire bus. Each node consists of a first common board carrying a microcontroller and a basic number of FET driver switches associated with a basic level of accessorization for that region of the vehicle. Each node further comprises a second larger pass through board which supports the first common board in spaced parallel relationship therewith and which carries terminal connectors. The larger pass through board has vacant locations for the addition of FET drivers needed for higher levels of accessorization. These locations are preconnected to the microcontroller but are unused in vehicles with lower levels of accessorization. The pass through board is also used to optimize the wiring by incorporation of splices and pass through circuits to eliminate wire harness interconnections.